

## **SUBSTITUTE SPECIFICATION**

5     “IMPROVED BATH AND APPARATUS THEREFOR”

### **Background of the invention**

10    The present invention relates to an improved bath.

As is known, gymnastics and physical activity in water cause considerable healthy advantages and benefits as well as reduce the risk of metabolic cardiovascular and tumoral pathologies correlated  
15    to sedentarity.

It is also known that physical exercises in water, that is in an ideal micro-gravitational environment is very advantageous for the rehabilitation of patients having articular and rheumatic pathologies  
20    for obese people, and so on.

Many proposals have been made for carrying out gymnastics and/or physical activities in water. In general they are, however, rather cumbersome, complex and expensive.

25    EP 1,020,205 A1 disclosed an underwater bicycle. US-5,665,039 discloses an underwater “cyclette” for swimming-pools. WO 98/34831 discloses a swimming-pool and sea bicycle which is fastened on an own base to be placed on a swimming-pool bottom or on the beach. US 3,791,332 discloses a bicycle-like vehicle to be  
30    use on the ground as well as in water. US 5,586,961 discloses a rather cumbersome structure for carrying out several exercises in water. EP 0,941,747 discloses an integrated apparatus for carrying out several exercises. US 5,752,899 discloses a system for carrying  
35    out a number of exercises with a central control of the water level

and temperature as well as a system of separable “chambers” and a cycling system having a wheel and turbine assembly. US 5,514,957 discloses an apparatus formed by a shaped mat for carrying out exercises in water involving lower limbs, stomach and backside.

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#### Summary of the invention

In the light of the above discussion, the main object of the present invention is to provide an improved bath allowing to carrying out pedaling exercises therein as well as an apparatus therefor.

10 Another object of the present invention is to provide a pedaling apparatus or assembly which may be easily associated to and removed from an existing bath.

According to the present invention, the above mentioned objects are  
15 achieved by an improved bath and a pedaling assembly therefor having the features discussed below.

The improved bath and the pedaling assembly therefor according to the present invention provide several advantages.

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First of all the suggested pedaling assemblies are simple and not cumbersome, so that they can either (in a first example) be housed directly in an improved bath or (in a second example) be removably associated to and removed from a support means integral with the  
25 bath or (in a third example) be removably associated to and removed from a common bath.

With the proposed pedaling assemblies it is, therefore, possible to carry out pedaling exercises at home, at any time and as frequent as wished, and enjoy the healthy benefits of physical activities  
30 immersed in water.

The pedaling assembly according to the present invention are further cheap, light and easily transportable so that they may also be used when traveling, in hotels and so on.

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The pedaling assemblies of the third example may be used in all bath types and they may be associated to the bath bottom at any distance from the user's legs, so that they may be efficiently and correctly used from tall and short people, children and so on.

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Brief description of the drawing

Further characteristics, advantages and details of the improved bath and apparatus therefor according to the present invention will become more apparent from the following disclosure of several  
10 embodiments of the three provided types of pedaling assemblies which are schematically illustrated in the accompanying drawings, in which:

Figure 1 is an exploded view of a pedaling assembly according to the present invention,

15 Figure 2 shows a pedaling apparatus of the first type,

Figure 3 shows a pedaling apparatus of the second type,

Figure 4 shows a pedaling apparatus of the third type,

Figure 5 to 7 show two embodiments of pedaling assemblies,

Figure 8 shows a pedal,

20 Figures 9 to 12 show embodiments of the pedaling apparatuses of the first type,

Figures 13 to 41 show embodiments of the pedaling apparatuses of the second type,

Figure 42 shows the pedaling position of a user in a bath, and

25 Figures 43 to 83 show embodiments of the pedaling apparatuses of the third type.

### Description of the preferred embodiment

With reference to figure 1 a pedaling assembly 1 according to the invention comprises in principle two pedals 2, two cranks 3 and a connecting axle or shaft 4.

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In all the provided embodiments said pedaling assembly 1 is supported by means of a supporting means 6 which may be carried out in principle in three different types which will be explained in greater detail below.

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In the first type said supporting means 6 is carried out as an integral part of a bath 7, Fig. 2.

In the second type said supporting means 6 is provided in a pedaling apparatus 8 which is removably connectable to one or more bath seat/seats 9 either directly (Figure 3) or by means of an intermediate support element as illustrated below.

In the third type said supporting means 6 is provided in a pedaling apparatus 12 having sucker means 13 allowing to said pedaling apparatus 12 to be removably connectable with the internal bath surface 14, that is the bath bottom 16 or the bath sidewalls 17, Figures 4, 12.

It is apparent for those skilled in the art that the simple components 2, 3 and 4 forming a pedaling assembly 1 may be either connected together in any suitable way, as known for example from the bicycle industry, or may be provided in one-piece construction, wherein in the last case the pedaling assembly 1 will look like a crankshaft.

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In the context of the present invention with the term “bath” is intended each type of bath, for example baths of any shape, baths and shower boxes having a tightly closable access door, baths having an enameled metal body, a plastic body, for example a metacrylate body, baths having an associated shower panel, and so

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on.

Figure 5 shows an example of an assemblable pedal assembly 1 the cranks of which have a threaded end 18 which may be screwed into an axle 4 having corresponding threaded hole 19 at both ends thereof.

The axle ends 21 and the crank ends 22 of the pedaling assembly 1 shown in Figure 6 are provided with a geometrical engagement and may removably assembled, e.g. clipped, together.

The pedals 2 may have any design and consist, for example, of a plastic block or plate 23 provided with throughgoing openings 24 allowing a continuous massaging of the foot sole by the water during pedaling, Figure 8.

As inferable from Figure 2, said supporting means 6 may be formed by a supporting projection 206 which is integral with the bath 7 and may have a shape at will. In the shown example said projection is box-shaped and at the lower end thereof it is provided with a – non shown – throughgoing hole in which is supported a pedal assembly 1, for example as illustrated in Figures 5 to 7.

In the embodiment of Figure 9 above said supporting projection 206 is provided a bracket 26, for example for supporting objects like soap-holder, shampoo and so on.

A similar bracket 26 is provided in the embodiment of Figure 10, in which said supporting projection 206 is formed by two uprights 27 having throughgoing holes 28 for supporting a pedaling assembly 1. In the bath 7 shown in Figure 11 said supporting means 6 is formed by a half-circular rib 29 in the throughgoing hole 28 is supported a pedaling assembly 1.

In the embodiment of Figure 12 said supporting projection 206 is cube-shaped and supports a pedaling assembly 1 as described

above. On the top of said cube-shaped hollow supporting projection 206 is provided a cover 31.

Reference is now made to the Figure 13 to 42 showing pedaling  
5 assemblies or apparatuses 1 of the second type.

In the embodiment of Figures 13 to 17 the pedaling assembly 1 presents supporting ends 32 which may be removably supported in bath seats 33 which are provided in the bath sidewalls 17,  
10 preferably by interposing of an elastic sleeve 34. In said sleeves 34 may also be provided an end spring 36, as shown in Figure 17. As already above stated, also these pedaling assemblies having supporting ends 32 may be produced as one-piece (Figure 17) or in several pieces to be clipped or fixed together (Figure 16).

15 Figures 18 – 20 show a pedaling apparatus 8 comprising a plastic apparatus body 37 provided at the lower end with a supporting throughgoing hole 38 and at the top a seat 39 for housing the transverse leg 41 of an intermediate T-shaped supporting element  
20 42 the vertical leg 43 of which may be housed in a not shown corresponding seat or hole 199 in the upper lip 44 of the bath 7. The use of this pedaling apparatus is shown in Figure 42. The location of the hole 199 is indicated in Figure 20.

25 By 46 is indicated a spacer, which is preferable adjustable, for setting the desired distance between said pedaling apparatus 8 and the bath 7.

The body apparatus 47 of the embodiment of Figure 21 is provided  
30 at the lower end with a supporting throughgoing hole 38 for supporting a pedaling assembly 1 and, at the top, with a profiled head 48. The latter may be removably inserted in a corresponding seat 49 provided in an intermediate stock-like supporting element 51 the lower end 52 of which may be inserted in a corresponding,  
35 not shown, seat in the bath upper lip.

The embodiment shown in Figure 22 has a similar apparatus body 47 whose profiled head 48 may be inserted in a corresponding seat 49 provided in the bath 7.

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Figure 23 shows a back or shower panel 52 with the supporting means 6 for supporting a not shown pedaling assembly. The supporting means is a U shaped element 306.

10 In the embodiment of Figure 24 and 25 the supporting means 6 is a box-shaped element 406 and provided with, in the example, two coupling collars 54 which are fastened to the cover 31 and may be inserted in two supporting pins 56 fixed to the bath lip 44.

15 The apparatus body 57 shown in Figure 26 has a cylindrical shape. In the horizontal assembling position said apparatus body supports at the front end a pedaling assembly 1 and is provided with a profiled rear end 58 which may be removably coupled with a corresponding seat 59 in a bath.

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The embodiment shown in the Figures 27 to 31 has a plastic apparatus body 61 provided at the top with a throughgoing hole 62 for housing two L-shaped intermediate supporting elements 63 (Figure 29). The latter, in turn, can be supported in corresponding bath seat 64. On its back side the apparatus body 61 may be provided with rubber sucker or the like 66 for a more stable positioning of said pedaling apparatus 8 against the bath 7.

30 The apparatus body 67 shown in the figures 32 to 34 differs from the apparatus body of the previous embodiment (Figures 27 to 31) by the fact that at its top in the middle of the profiled edge 68 is provided a hole 69 through which a supporting pin 71 may be inserted in the seat 72 of an intermediate supporting element 73 which, in turn, with its two pin-like projections 74 may be inserted in corresponding, not shown, bath seats.

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The apparatus body 76 illustrated in the Figures 35 to 37 is similar to those shown in the figures 27 to 34 and is provided with a top rear profiled edge 77 which is bent downwards and has an internal  
5 profiled coupling element 78 which may removably be engaged in a corresponding, not shown, bath seat

Figures 38 and 39 show a further plastic apparatus body 79 which on the surface facing the bath 7 is provided with one or more pin-  
10 shaped coupling projection 81 which can be inserted in corresponding, not shown, bath seat/seats.

Figures 40 and 41 show another apparatus body 82 having at the top a profiled edge 83 corresponding to the profiled bath top edge 84 and a coupling projection 86 which , when positioning the pedaling  
15 apparatus into the bath, will be inserted in a corresponding, not shown, bath seat.

Reference is now made to the Figures 43 to 83 showing pedaling  
20 apparatuses of the third type.

A first embodiment of a pedaling apparatus is illustrated in Figures 43 to 48 and has a hollow body 87 which at the bottom houses a sucker assembly 88 comprising a rubber disk 89 and a rigid, for example metal counterdisk 91 having two positioning rod 92 and an  
25 interposed spring 93. To the rubber disk 89 is fixed a supporting base 94 on which is eccentrically hinged a control lever 96, as in principle known in industrial suckers or tightly operating suckers.

The pedaling assembly 1 is housed in a bearing liner 97 incorporated at the top of said hollow body 87.

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In a preferred embodiment the at the top of the hollow body 87 is also incorporated a braking shoe 98 acting on the axle 4 and controlled by a control screw 99 in order to adjust the pedaling resistance as wished by the user. By 100A is denoted a display  
35 connected with a programmed chip for indicating the pedaling



speed, the set pedaling resistance, a covered pedaling distance and so on.

5 A simpler embodiment of the type illustrated in the Figures 43 to 46 is shown in the Figures 47 and 48.

10 A T-shaped tubular apparatus body 101 houses in its horizontal leg 102 a pedaling assembly 1 and in its vertical leg 103 a braking shoe 104 and a base 106. 107 indicates an adjusting ring for adjusting the pedaling resistance as chosen by the user.

A sucker 108 allows a stable positioning of the pedaling apparatus on the bath bottom.

15 The embodiment shown in the Figures 49 to 51 has a plastic apparatus body 111 provided with rubber suckers 112 or the like for fixing the pedaling apparatus 110 to a bath, Figure 52.

20 The embodiments shown in the Figures 53 to 63 illustrates different shaped pedaling apparatus bodies according to corresponding bath outlines and seats. Some apparatus bodies are also provides with rubber suckers 112.

25 The pedaling apparatus illustrated in Figure 66 has an egg-shaped apparatus body 113 provided at the bottom thereof two lever control suckers 114.

30 With reference to the Figure 67 to 71 the apparatus body has the form of a thin plastic mattress or mat 115 having an upwards bent profiled end 116 with opposite flanges 117 provided with a throughgoing hole 118 for supporting a pedaling assembly 1. Suckers assuring a stable positioning of said mat 115 in the bath 7 containing water are denoted by 119.

35 In the embodiment illustrated in Figure 68 on the mat end opposed

to the profiled end 116 is formed a saddle 121 on which the user may sit.

5 In the embodiment of Figure 69 transverse folding lines are indicated by 122. In this embodiment by 123 is further a known removable connecting means denoted, for example a zip fastener 124 allowing to separate the mat 115 from the profiled end 116 thereof.

10 In the embodiments of Figures 70, 71 and 72 other examples of separable mat and profiled ends 116 or pedaling assemblies are shown. With the mat 115 of Figure 72 may be associated either the pedaling apparatus of Figure 73 by using the connecting means 123A or the pedaling assembly of Figure 74 by means of the  
15 connecting means 123B.

From Figure 76 is inferable that a mat 115 may also be associated to a distinct pedaling apparatus 126 as shown in Figure 77 which illustrate a pedaling assembly 1 supported in a U-shaped supporting  
20 structure 127.

Instead of the pedaling apparatus 126 said mat 115 may also be used with other pedaling apparatuses, for example with the pedaling apparatus 128. The latter comprises a pedaling assembly 1, for  
25 example in the disassemblable form, supported by two suckers 129 to be fixed to the bath sidewalls.

In Figure 79 is shown that the met-like embodiments of the illustrated pedaling apparatuses may be transportable in a bag-like  
30 container 131.

As shown in Figures 80 to 83 baths are known which are provided with a shower panel 131. According to the present invention a pedaling apparatus 8 may also be provided in similar baths. As  
35 depicted in said Figures 80 to 83 a pedaling assembly 1 is pivotally

supported in a box-like structure 132 which may be integral with the bath body or fixed to the latter by means of, not shown, suckers or the like. Said box like structure 132 may also be used as a seat. When not used the pedaling assembly 1 may be rotated inside said  
5 box-like structure 132.

A pedaling apparatus 8 may also be provided, for example as a swingable seat 133, in a shower cubicle or bathing-box 134. In the latter may also be provided a gym apparatus 135 with weights 136  
10 which may be lifted by means of a couple of handles 137.

In practicing the invention, the above disclosed and illustrated pedaling assemblies and apparatuses will be have a size allowing a free pedaling in the baths, may be made of plastics or metal, can be  
15 subjected to several modifications and variations and it would also be possible to replace individual components with other technically equivalent components, without departing from the scope of the invention.